INDIANA DEPARTMENT OF TRANSPORTATION
OFFICE OF MATERIALS MANAGEMENT

VERIFICATION OF CALIPERS
ITM No. 916-14P

1.0 SCOPE.

1.1 This test method covers the procedures for verifying the accuracy of calipers used for measuring the critical dimension of various testing equipment.

1.2 This ITM may involve hazardous materials, operations, and equipment and may not address all of the safety problems associated with the use of the test method. The user of the ITM is responsible for establishing appropriate safety and health practices and determining the applicability of regulatory limitations prior to use.

2.0 TERMINOLOGY.

2.1 Accuracy. The degree of conformity of a measurement with the true value of the quantity measured.

2.2 National Institute of Standards and Technology (NIST). A federal technology agency that develops and applies technology, measurements, and standards.

3.0 APPARATUS.

3.1 Set of four gage blocks having NIST traceability documentation which includes parallelism verification and certified within the last 24 months.

3.2 Calipers readable to the nearest 0.001 in.

3.3 Rubber band

4.0 SIGNIFICANCE AND USE. This ITM is used by laboratory personnel to determine the accuracy of calipers.

5.0 PROCEDURES.

5.1 Allow the gage blocks and calipers to stabilize to the ambient working temperature.

5.2 Visually inspect the caliper blades for wear.

5.2.1 For the blades used to measure outside dimensions, close the calipers tightly and hold the calipers up to a light source to check for illuminated gaps between the blades. No light should be visible.

5.2.2 For the blades used to measure inside dimensions, close the calipers tightly and hold up to a light source. Adjust the calipers until light is apparent between the outside dimensional measurement blades. Using the illuminating light as a reference, determine that the blades are parallel with no apparent wear (Figure 1).

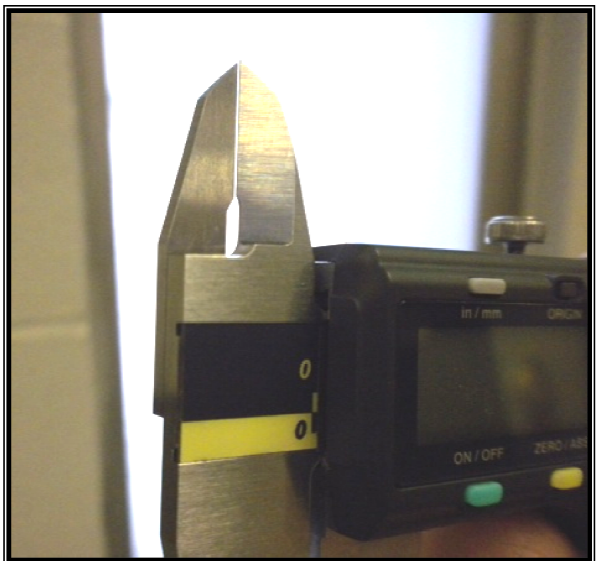

Figure 1

5.3 Using the calipers and one of the gauge blocks, measure and record the width at 1 in. and the length at 3 in. of the gage block (Figure 2).

5.4 Using the calipers and two of the gauge blocks, measure and record the length of both blocks firmly placed end to end totaling 6 in. (Figure 3).

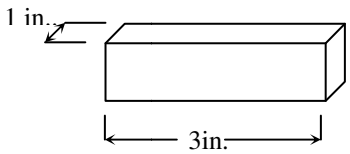

Figure 2

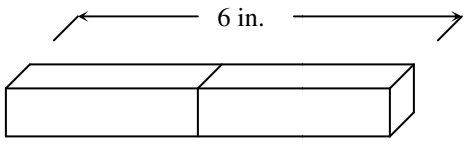

Figure 3

5.5 Arrange the blocks in accordance with Figure 4 to verify the jaws for internal measurements at 1 in., 3 in., and 6 in. Wrap a rubber band around the blocks to prevent the end blocks from moving. Using the calipers, measure and record the internal measurement at 1 in., 3 in., and 6 in. (Figure 5).

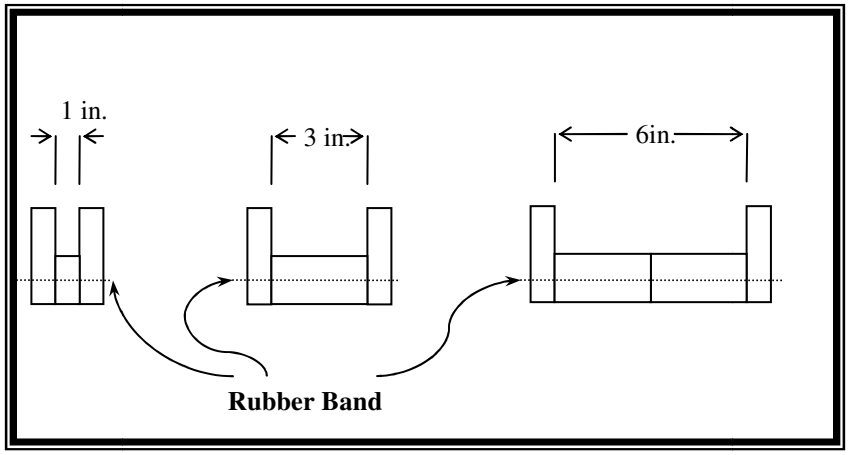

Figure 4

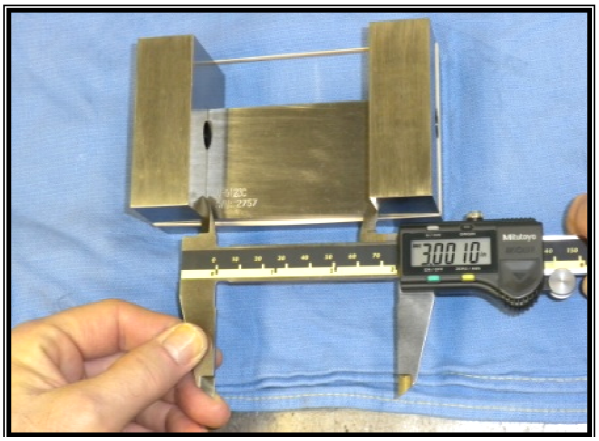

Figure 5

Note 1: Measurements are required to be taken on the sharpened blade of the calipers during verification and in regular use.

Note 2: Care should be taken to ensure parallelism with the center block(s).

6.0 REPORT. The measurements and error shall be reported on the form in Appendix A.

VERIFICATION FORM
CALIPERS
ITM 916

Apparatus checked:

Calipers Identification: _____

Equipment used:

Gage Block Set: _____ Date Calibrated: _____

Visual Check for Wear:

Blades are parallel with no apparent wear? Yes_____ No_____

Outside Measurment Verification:

Known Value (in.)	Actual Caliper Reading	Error	Pass or Fail (± 0.005)
1.000			
3.000			
6.000			

Inside Measurment Verification:

Known Value (in.)	Actual Caliper Reading	Error	Pass or Fail (± 0.005)
1.000			
3.000			
6.000			

Comments:
_____
_____
_____

Verified by: _____

Date: _____ Next Due Date: _____